(C) REMARKS

Claims 1-16 are pending in the present patent application. Claim 1 is amended by integration of the substantive content of claim 2 into claim 1 and by addition of text from claims 3 and 7 to clarify the dynamic nature of the variable operator length, which can be minimized for each depth extrapolation step in the migration process. As a consequence, claim 2 is deleted. A complete set of claims, including amended claims, are presented above in Section (B) Amendments to the Claims. It is believed that this amendment will place the application into condition for allowance.

In the Office Action, the Examiner rejects claims 1-16 under 35 U.S.C. §102(b), as being anticipated by Soubaras, in U.S. Patent No. US-5,583,826. With regard to claim 1, the Examiner states that Soubaras '826 discloses all the limitations for claim 1. In particular, the Examiner states that Soubaras '826 discloses the use of variable operator length in explicit depth extrapolation operators.

However, in Soubaras '826, all extrapolation operators disclosed have fixed operator lengths, rather than variable operator lengths. In Soubaras '826, the extrapolation operator disclosed is an approximation by a polynomial of the minus Laplacian, which in turn is an approximation by a sum of two one-dimensional filters (see, for example, column 5, lines 42-50 and column 8, lines 31-49 of Soubaras '826). The form of the approximations to the polynomial of the minus Laplacian and the sum of the two one-dimensional filters are operators of fixed operator length. Note that the operator length is the fixed size "N" of the summation defining the discrete version of the extrapolation operators (see, for example, the equations and accompanying text in column 5, lines 51-64 and column 8, lines 50-67 of Soubaras '826). The equations defining the extrapolation operator are solved in the L^∞ norm sense using the Remez Exchange Algorithm, which also does not vary the operator lengths (see, for example, column 7, lines 1-64 of Soubaras '826).
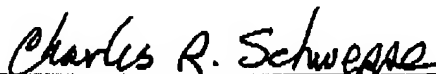
Although the operator length for a particular explicit depth extrapolation operator in Soubaras '826 (or other prior art) may be variable in the sense of being a somewhat arbitrary constant "N", the operator length always remains the same throughout a particular depth migration application. In contrast, the present invention teaches a method for changing (in

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particular, minimizing) the operator length for each depth extrapolation step during a depth migration application. Nothing in Soubaras '826 provides for varying the operator length of explicit depth extrapolation operators during a depth migration. Thus, Soubaras '826 neither teaches nor suggests a method for "performing depth migration using the explicit depth extrapolation operator in a sub-domain at a depth having the smallest operator length from the operator tables for the highest wavenumber in the sub-domain at the depth", as in the present invention, as embodied in amended claim 1.

Since independent claim 1, as amended, is allowable, its dependent claims 2-16 are also allowable. Thus, applicant believes that claims 1-16 are ready for acceptance. Applicant respectfully requests their reconsideration and acceptance.

Respectfully submitted,

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